

EXPRESS MAIL LABEL NO. EV314044282US

DATED: 1 APRIL 2004

ATTORNEY DOCKET: MXIC 1571-1

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of Inventors:  
**Chih Chieh Yeh et al.**

Group Art Unit: unknown  
Examiner: unknown

Application No. \_\_\_\_\_

Filed: 1 April 2004 (herewith)

**CUSTOMER NO. 22470**

Title: **Integrated Code and Data Flash  
Memory**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**INFORMATION DISCLOSURE STATEMENT UNDER 37 C.F.R. §1.56**

Sir:

It is requested that the information identified in this statement be considered by the Examiner and made of record in the above-identified application. This statement is not intended to represent that a search has been made or that the information cited in the statement is, or is considered to be, material to patentability as defined in 37 C.F.R. 1.56.

Enclosed with this statement is a Form PTO-SB/08. The Examiner is requested to initial the form and return it to the undersigned in accordance with M.P.E.P. 609.

Also enclosed with this statement is a copy of each cited document as required by 37 C.F.R. 1.98. The exception to this, in accordance with the 05 August 2003 Official Gazette Notice in which the USPTO waives the requirement for submitting copies of U.S. Patent and Publications for cases filed after 30 June 2003, is that copies of U.S. Patent documents and copies of U.S. Patent publications are not being submitted.

If a written English-language translation of a non-English language document, or portion thereof, is within the possession, custody or control of, or is readily available to any individual designated in 1.56(c), a copy of the translation accompanies this statement, 37 C.F.R. 1.98(a)(3)(ii), and satisfies the requirement for a concise explanation of relevance, MPEP 609A(3).

This statement should be considered under 37 C.F.R. 1.97(b) because it is being filed within three months of the filing date of an application other than a continued prosecution application under 37 C.F.R. 1.53(d).

**Fee Authorization.** The Commissioner is hereby authorized to charge underpayment of any additional fees or credit any overpayment associated with this communication to Deposit Account No. 50-0869 (MXIC 1571-1). A copy of this authorization is enclosed.

Respectfully submitted,  
HAYNES BEFFEL & WOLFELD LLP

Date: 31 Mar 2004

By:   
Mark A. Haynes, Reg. No. 30,846

HAYNES BEFFEL & WOLFELD LLP  
P.O. Box 366  
Half Moon Bay, CA 94019  
Telephone: (650) 712-0340  
Facsimile: (650) 712-0263

Please type a plus sign (+) inside this box → +

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>			<b>Complete if Known</b>		
			Application Number		
			Filing Date		
			First Named Inventor		
			Group Art Unit		
			Examiner Name		
Sheet	1	of	3	Attorney Docket Number	
				MXIC 1571-1	

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	A1	4,959,812		Momodomi et al.	09-25-1990	
	A2	5,270,969		Iwahashi	12-14-1993	
	A3	5,424,569		Prall	06-13-1995	
	A4	5,448,517		Iwahashi	09-05-1995	
	A5	5,515,324		Tanaka	05-07-1996	
	A6	5,644,533		Lancaster et al.	07-01-1997	
	A7	5,768,192		Eitan	06-16-1998	
	A8	6,011,725		Eitan	01-04-2000	
	A9	6,172,907		Jenne	01-09-2001	
	A10	6,215,148		Eitan	04-10-2001	
	A11	6,370,062		Choi	04-09-2002	
	A12	6,436,768		Yang et al.	08-20-2002	
	A13	6,458,642		Yeh et al.	10-01-2002	
	A14	6,487,114		Jong et al.	11-26-2002	
	A15	6,566,699		Eitan	05-20-2003	
	A16	6,614,694		Yeh et al.	09-02-2003	
	A17	6,643,181		Sofer et al.	11-04-2003	
	A18	6,690,601		Yeh et al.	02-10-2004	
	A19	Re. 35,838		Momodomi et al.	07-07-1998	
	A20	2002/0179958		Kim	12-05-2002	

FOREIGN PATENT DOCUMENTS								
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	B1	JP	09162313A		Atsushi	06-20-1997		
	B2	JP	11233653A		Shigeki	08-27-1999		
	B3							
	B4							
	B5							
	B6							
	B7							
	B8							
	B9							
	B10							

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → +

PTO/SB/08A (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

<p>Substitute for form 1449A/PTO</p> <p><b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b></p> <p><i>(use as many sheets as necessary)</i></p>			<p><b>Complete if Known</b></p>	
	<b>Application Number</b>			
	<b>Filing Date</b>	1 April 2004 (herewith)		
	<b>First Named Inventor</b>	Chih C. Yeh		
	<b>Group Art Unit</b>			
	<b>Examiner Name</b>			
<b>Sheet</b>	2	<b>of</b>	3	<b>Attorney Docket Number</b> MXIC 1571-1

U.S. PATENT DOCUMENTS						
Examiner Initials*	Cite No. <sup>1</sup>	U.S. Patent Document		Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
		Number	Kind Code <sup>2</sup> (if known)			
	A21	2003/0137873		Kawamura	07-24-2003	
	A22	2003/0185055		Yeh et al.	10-02-2003	
	A23					
	A24					
	A25					
	A26					
	A27					
	A28					
	A29					
	A30					
	A31					
	A32					
	A33					
	A34					
	A35					
	A36					
	A37					
	A38					
	A39					
	A40					

FOREIGN PATENT DOCUMENTS								
Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document			Name of Patentee or Applicant of Cited Document	Date of Publication of Cited Document MM-DD-YYYY	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code <sup>5</sup> (if known)				
	B11							
	B12							
	B13							
	B14							
	B15							
	B16							
	B17							
	B18							
	B19							
	B20							

<b>Examiner Signature</b>		<b>Date Considered</b>	
-------------------------------	--	----------------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> See attached Kinds of U.S. Patent Documents. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Please type a plus sign (+) inside this box → ☐

PTO/SB/08B (08-00)

Approved for use through 10/31/2002. OMB 0651-0031

U. S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

<b>Substitute for form 1449B/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)			<b>Complete if Known</b>		
			Application Number		
			Filing Date	1 April 2004 (herewith)	
			First Named Inventor	Chih C. Yeh	
			Group Art Unit		
			Examiner Name		
Sheet	3	of	3	Attorney Docket Number	MXIC 1571-1

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials*	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	C1	BLOOM, ILAN, et al., "2-Bit Cell NV Memory Minimizes Chip Area with Less Masks," Nikkei Electronics Asia, January 2002, 11 pages	
	C2	DE BLAUWE, JAN, "Nanocrystal Nonvolatile Memory Devices," IEEE Transactions on Nanotechnology, Vol. 1, No. 1, March 2002, 72-77.	
	C3	HIROSE, M., "Challenges for Future Semiconductor Development," International Microprocess and Nanotechnology Conference, 6 November 2002, 47 pages.	
	C4	LEE, JAE-DUK, et al., "Effects of Floating-Gate Interference on NAND Flash Memory Cell Operation," IEEE Electron Device Letters, Vol. 23, No. 5, May 2002, 264-266.	
	C5	SHIN, YOOCHEOL, et al., "High Reliable SONOS-type NAND Flash Memory Cell with Al <sub>2</sub> O <sub>3</sub> for Top Oxide," Non-Volatile Semiconductor Memory Workshop, 2003, 2 pages.	
	C6	LEE, CHANGHYUN, et al., "A Novel Structure of SiO <sub>2</sub> /SiN/High k Dielectrics, Al <sub>2</sub> O <sub>3</sub> for SONOS Type Flash Memory," Extended Abstracts of the 2002 International Conference on Solid State Devices and Materials, Nagoya, Japan, 2002, 162-163.	
	C7	YEH, C.C., et al., "PHINES: A Novel Low Power Program /Erase, Small Pitch, 2-Bit per Cell Flash Memory," IEEE IEDM, 2002, 931-934.	
	C8	PRINZ, E.J., et al., "An Embedded 90nm SONOS Flash EEPROM Utilizing Hot Electron Injection Programming and 2-Sided Hot Hole Injection Erase," NVM Workshop 2003, 2 pages.	
	C9	RUDEN, P. PAUL, et al., "Modeling of band-to-band tunneling transitions during drift in Monte Carlo transport simulations," J. Appl. Phys., Vol. 88, No. 3, 1 August 2000, 1488-1493.	
	C10	LEE, CHANG HYUN, et al., "A Novel SONOS Structure of SiO <sub>2</sub> /SiN/Al <sub>2</sub> O <sub>3</sub> with TaN Metal Gate for Multi-Giga Bit Flash Memories," IEEE 2003, 4 pages.	
	C11	CHUNG, STEVE S., et al., "A Novel Leakage Current Separation Technique in a Direct Tunneling Regime Gate Oxide SONOS Memory Cell," IEEE 2003, 4 pages.	

Examiner Signature		Date Considered	
-----------------------	--	--------------------	--

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Unique citation designation number. <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U. S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.